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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/730,916

12/10/2003

Eiji Iwanari

2018-819

6688

23117

7590

10/11/2006

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EXAMINER

HAMO, PATRICK

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/730,916	IWANARI, EIJI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Patrick Hamo	3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2 May 06, 10 Dec 03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 9 and 11 are objected to because of the following informalities: in lines 5-6 of both claims, applicant claims a rotor including "an armature... inside of the armature". Because of the physical impossibility of an element being inside of itself, it is understood by the examiner that the appropriate phrase should read "the rotor includes an armature, which is rotatably disposed inside of the stator". For purposes of examination, the claims will be interpreted as such. Appropriate correction is required.
2. Claim 10 is objected to because of the following informality: applicant claims a fuel pump wherein "the stator has a plurality of coils" and "the stator has a permanent magnet", however the applicant does not disclose any embodiments in which the stator has both a plurality of coils and a permanent magnet. The examiner understands this claim to apply to the embodiment of figure 10 wherein the stator has a plurality of coils (198) and the rotor has a permanent magnet (186). For purposes of examination, the claim will be interpreted as a fuel pump wherein the stator has a plurality of coils and the rotor has a permanent magnet. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 4 recites the limitation "the projecting portion" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim or the claims from which it

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depends. Claim 4, as well as claims 5 and 6 depending from claim 4 are therefore rejected under the second paragraph of 35 U.S.C. 112. For the purposes of examination, "the projecting portion" is understood to be the projecting portion of the case member referenced in claim 2.

5. Claim 13 recites the limitation "the cover" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim or the claims from which it depends. Claim 13 is therefore rejected under the second paragraph of 35 U.S.C. 112. For the purposes of examination, "the cover" is understood to be the cover of the armature first referenced in claim 7.

6. Claims 14 and 15 recite the limitation "the armature". There is insufficient antecedent basis for this limitation in the claim. Claims 14 and 15 are therefore rejected under the second paragraph of 35 U.S.C. 112. For the purposes of examination, "the armature" is understood to be the armature first referenced in claim 7.

7. Claim 16 recites the limitation "each bobbin" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 16 is therefore rejected under the second paragraph of 35 U.S.C. 112. For the purposes of examination, "each bobbin" is understood to be one of the plurality of bobbins referenced in claim 14.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

9. Claims 1-6, 8, 13, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Takemoto et al., U.S. Pat. No. 6,082,974.

Takemoto discloses the same invention substantially as claimed including: a rotor (4); a rotation shaft (3), which revolves integrally with the rotor; bearing members (4b, 8a), which support both axial ends of the rotation shaft; a stator (5), which is disposed on an outer circumference of the rotor and surrounds the rotor; a drawing force generative means (13) in the form of an impeller, which generates drawing force for drawing fuel from the fuel tank by means of rotation force of the rotor, wherein: the rotor has a recess (4a) in a center of its axial end portion; and at least one of the bearing members (4b) is disposed in the recess; the drawing force generative means has a rotation member (13), which rotates integrally with the rotor, and a case member (7), which houses the rotation member; the case member has a projecting portion (7d), which is disposed in the recess, and at least one part of the projecting portion projects toward the recess; and the projecting portion supports one of the bearing members (4b) by an inner periphery of the projecting portion; the rotor (4) and the drawing force generative means (13) are disposed to be overlapped in an axial direction of the rotor; the rotor (4) and the drawing force generative means respectively have stepped portions (formed between the bearings and the projection (7d) in the center of figure 1); and the rotor and the drawing force generative means are disposed to be overlapped so that the stepped portions oppose each other (see figure 1); the cover has a connective

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portion (projecting radially inward from 7c), which is disposed at a bottom of the recess and connected with the rotation shaft, and a cylindrical portion (7d), which extends from an outer periphery of the connective portion to an opening of the recess along the rotation shaft; and thickness of the connective portion is thicker than thickness of the cylindrical portion (see figure 1); the position of the centroid of the rotor is positioned in the substantial center between the bearing members (see figure 1).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 7, 9-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto et al. as applied to the claims above in view of Moroto et al., U.S. Pat. No. 6,541,889.

Takemoto et al. discloses the invention substantially as claimed except for the following: the stator has a permanent magnet, which is disposed on its circumference and forms a plurality of magnetic poles the polar characters of which are alternated; the rotor includes an armature, which is rotatably disposed inside of the stator, and a commutator, which rotates integrally with the armature and has a plurality of segments respectively electrically connected with coils of the armature; and the armature has a cover, which covers one of axial end portions of the armature, and the recess is formed

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in the cover; the armature includes a plurality of bobbins arranged in the circumferential direction of the armature; and each bobbin is wound with a coil by way of concentrated winding; the armature includes a central core, which is disposed in the rotational center of the armature; a plurality of coil cores magnetically connected with the central core, the coil cores being different bodies from the central core and disposed in the outer circumference of the central core to be arranged in the circumferential direction thereof; a room around each bobbin to be wound with a coil is formed to be a trapezoidal shape that becomes smaller from the outer periphery to the rotational center of the coil core. Takemoto discloses a cover (7) that covers an axial end of the rotor in which the recess is formed, though the rotor does not include an armature and a stator with a plurality of coils (5a) disposed on its circumference and a rotor with a permanent magnet, though the alternating poles of the permanent magnet are not explicitly disclosed.

However, Moroto et al. teaches a DC motor that is easy to change connection of the armature coil, including a cylindrical yoke (2) with a plurality of permanent magnets (3) magnetized to alternately form N and S magnetic poles (column 2, lines 65-67). The yoke does not rotate and can therefore be called a stator. Inside the yoke is a rotor, including an armature (4) rotatably disposed inside the magnets that form the yoke (column 2, lines 62-63) and a commutator (8) that rotates with the armature (column 3, lines 1-3) and is comprised of six segments (8a) that connect to the armature coils (column 3, lines 55-56). Each armature coil (7) is wound around a bobbin (9), and the armature includes an armature core (6) connected to each armature coil (column 3, lines 7-9), coil cores (see figure 2b) that are different bodies from the central core (see

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figure 3a) and arranged in a circumferential direction thereof (see figure 3b), and each armature coil is wound around the body of the bobbin from the radially inside portion to the radially outside portion so that the number of turns of a portion of the armature coil at a more radially outside portion becomes larger to form a trapezoidal shape (column 3, lines 18-22). In effect, Moroto et al. teaches a motor that is the inverse of Takemoto's motor, in that the rotor includes the armature coils and the stator includes the permanent magnets instead of the rotor including the permanent magnets and the stator including the armature coils, with the added inventive step that it is easy to change the connection of the armature coil. If Takemoto's invention were to be modified with that of Moroto, the cover (7) that covers an axial end of the rotor would then also cover an axial end of the armature. Also, the inventive step of alternating the poles of the permanent magnet in Moroto's stator, or yoke, could be applied to Takemoto's rotor.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified Takemoto's invention with that of Moroto in order to provide a fuel pump with a DC motor that simplified the changing of the connection to the armature coils.

### ***Conclusion***

12. Applicant is duly reminded that a complete response must satisfy the requirements of 37 C.F. R. 1.111, including: "The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references. A general allegation that the claims



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'define a patentable invention' without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section. Moreover, 'The prompt development of a clear Issue requires that the replies of the applicant meet the objections to and rejections of the claims.'" Applicant should also specifically point out the support for any amendments made to the disclosure. See MPEP 2163.06 II(A), MPEP 2163.06 and MPEP 714.02. The "disclosure" includes the claims, the specification and the drawings.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Hamo whose telephone number is 571-272-3492. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature consisting of the letters 'PH' in a stylized, cursive script.

PH

A handwritten signature in cursive script, appearing to read 'Anthony D. Stashick'.

**ANTHONY D. STASHICK**  
**PRIMARY EXAMINER**